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NATURAL HISTORY

THE

LINCOLNSHIRE NATURALISTS UNION

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TRANSACTIONS

Edited by
D. N. ROBINSON, M.Sc.

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LINCOLN
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The Lincolnshire Trust for Nature Conservation Ltd.

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Founded June 12th, 1893

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STATEMENT OF ACCOUNT

from January 1st to December 31st, 1966

INCOME AND EXPENDITURE ACCOUNT

RECEIPTS

	£	s	d
To Balance at the Midland Bank, Lincoln, 1st January, 1966	118	10	10
„ Interest on £500 Defence Bonds	25	0	0
„ Sale of Books and Transactions	3	11	0
„ Subscriptions and Donations	306	8	0
„ Off print of President's Address	5	0	0
	£458	9	10

EXPENSES

	£	s	d
By Printing *Transactions*, Vol. XVI, No. 2	189	0	0
„ Duplicating, packing and posting of notices ...	56	13	7
„ Subscriptions to Societies — Council for Nature B.S.B.I., B.T.O., B.H.S., B.B.S., B.B., C.P.R.E.	14	14	0
„ Lecturers expenses	9	4	0
„ Income Tax on Defence Bonds	10	6	3
„ Hire of Rooms	17	11	6
„ Secretarial expenses: Mr. Seaward, Mr. Baker, Mr. Townsend	19	2	7
„ Printing of notepaper, B.T.O. forms, etc. ...	16	9	7
„ Purchase of old *Transactions* for re-sale	4	10	0
„ Bank Charges	1	6	0
„ Cash at Bank, 31st December, 1966	114	12	4
„ Off-prints of President's Address	5	0	0
	£458	9	10

Audited and found correct, 24th February, 1967.

ROBERT WITHERS.

Presidential Address

Delivered at Lincoln on 5th March, 1966
by
J. H. CHANDLER

THE UFFINGTON GRAVEL PITS: AN ECOLOGICAL STUDY

Introduction

From 1950 to 1952, after I changed my office from Spalding to Stamford, I travelled daily between those places, mostly by car, and passed regularly through Uffington. In winter, when the trees were bare, the Willows of the old gravel workings were plain to see from the road and the small Witches Brooms among the branches intrigued me. The field to the west of Copthill Farm, which is now a sunk meadow, was then being worked for gravel in connection with the alterations to Wittering airfield.

I have often found that places of interest close at hand are neglected, while others more distant are investigated despite the need for a greater effort and expenditure of time. That is what happened in this case, for it was not until June, 1957 that I went into the pits, and, in the Willow thicket found Spotted Orchid and Male Fern, while the marshy areas produced Marsh Horsetail (*Equisetum palustre*) and Lesser Spearwort (*Ranunculus flammula*), and dry banks at the entrance Squirrel tail Fescue (*Vulpia bromoides*).

By this time quarrying in the field next to the farm had ceased, but the old workings were occupied by Mr. A. G. Teesdale, partly for poultry and partly as a training ground for his gun dogs. This made it rather dangerous for the casual visitor, as in the thicket one could well be in the line of fire without realising it. So apart from a few visits to the immediate vicinity of the entrance, where builders' rubble had been dumped, I paid little attention to this spot.

In May, 1964 the Stamford Borough Council were about to take over the old workings from Mr. Teesdale for use as a refuse dump. I obtained permission to visit the site and started to explore it as thoroughly as time would allow. Almost immediately I met with a patch of *Sphagnum fimbriatum* and it was soon apparent that this was no ordinary spot.

So I decided to do what I could to record the plant life there before it disappeared for ever. Time was against me, however. My spare time had seldom been so limited, and the dustmen worked harder than I expected. Felling of the trees and scrub went on well in advance of the filling, and waste products from the refuse poisoned the water of the ponds.

Recording in the past has often been restricted to a bare statement of the presence of a particular species in one or other of the eighteen natural history divisions into which the County has been divided. Here, however, I wished not only to record what species were present, but also, as far as possible, why they grew there and what other species grew with them. In other words I wished to investigate the ecology of the area. Ideally I should not have stopped short with plant life, but should also have included all forms of life, but with many groups my knowledge is limited and I have had to be content to cover a small portion only of the possible field.

History

Messrs. F. B. Gibbons of Market Deeping worked both the pits in review. The Morley Wood Pit was started soon after the 1914-18 War on Government sponsored contracts designed to employ demobilised soldiers. Much of it was used at Spalding Sugar Factory. It was worked on old fashioned methods, the gravel being dug and sieved by hand and not washed. Towards the end of operations at this spot, frequent clay layers appearing among the gravel made working difficult, and somewhere about 1930 they moved over to the Copthill Pits.

The exact year of this change is not now easily settled as the records have been destroyed. Soon after starting work here a water bore was drilled from the bottom of the first pit near the entrance. The drilling was done by Smiths of Grimsby. The site of this bore has now been lost and it seems to have been covered on one of the occasions when operations were resumed between 1939 and 1950. Water from it was pumped into a pit beside the plant which was situated on the west side of the access road about halfway along, and from this reservoir it was pumped to the washing plant.

The gravel was worked first from the top strip along the roadside, and then down the side of the spinney, finally reaching the south-west corner which is now the deep pond. Work ceased about 1937, but was resumed for a short while in 1939 for the filling of sandbags to make blast barriers at the start of the last war.

The 1932 Edition of the six inch Ordnance Survey Map shows that the survey of this part of Lincolnshire was revised in 1928/9. The Copthill Pits are not shown on this map, though the plantation to the west of the pits is there and also the northern half of the Morley Wood Pit. The 1949 Edition of the two and a half inch Ordnance Survey Map shows the same position as the 1929, but with the 1950 revision both quarries are included in their final worked-out condition. This confirms that the northern end of the Morley Wood Quarry is the oldest working (not taking into account the other still older workings here which have now been brought back into cultivation). Also it shows that the southern part of this pit and the Copthill Pit were both worked out between 1930 and 1950 though in each case it appears that a

working face was kept open for small scale irregular removals up to present times.

In 1951 gravel was extracted from the field between the Copthill Pits and the farmhouse for use in extending Wittering airfield. On this site however, as soon as work had ceased the ground was levelled, drained, and reseeded with grass so that this area is now a sunk meadow. The old pits themselves in the meantime had been used spasmodically for dumping builders' refuse and surplus soil from other sites.

About 1950 Mr. Teesdale started to use the pits for a training ground for his gun dogs. A few paths were mowed periodically through the scrub and catapults were erected on posts at one or two sites in the pits which were used to throw tennis balls into the scrub for the dogs to retrieve. For some ten years pheasants and guinea fowl were reared on the sand heap encircled by Willows not far from the entrance, after which they were taken to Mr. Teesdale's home where they were more easily looked after. One Guinea fowl however refused to move and although above twelve years old he continued to maintain himself unaided, roosting high in the Poplars.

The last phase started in July, 1964 when the workings were taken over by the Stamford Corporation as a refuse dump. Beginning at the lower edge they are gradually filling in the pits up to the original ground level with domestic and industrial refuse — a lot of it more or less unburnt — consolidated by the black burnt out moulding sand from Blackstones and other foundries in the town. In doing this the scrub and trees are being gradually cut down and burnt and the habitat destroyed.

Topography

The Copthill Pits cover an area of about three-quarters of an acre (0.52 hectare) in the form of a trapezium. Its length, parallel to the main road, A.16, is 245 yards (230 metres) and its sides, which are normal to the road are 125 yards (115 metres) and 180 yards (165 metres) on the east and west margins respectively. The Morley Wood Pit is of irregular shape and is only about a quarter of this size.

The entrance to the Copthill Pits is from this A.16 Uffington to Deeping road, about halfway between the point where the road leaving Uffington takes a right-angle turn to the east at the Uffington Park wrought iron gates, and Copthill farm. An access road runs south along the fence beside the sunk meadow on the east side of the Pits and some fifty or sixty yards in, bears to the right into the bottom of the working. A branch road also carries straight on giving a point of access to the field below the pits towards the river Welland. This eastern edge of the area is at its original level and may never have been fully worked. It is from this bottom corner that refuse filling is proceeding. Earlier filling had taken place from the entrance along the northern face of the workings close to the road. This appears to be of bricks and builders' rubble a lot of it probably from air raid shelters

dismantled after the war. It has formed a roadway fifteen or more feet wide along two thirds of the northern boundary. The area near the entrance is more than double this width and is now, in parts, well grassed over.

Proceeding into the pits there is first an area of rather steep hills and holes, followed by a larger area of much shallower contours gradually sloping to the south-west corner which is the lowest point of the whole area. Most of the heaps, whether big or little are of gravel, but one of the biggest, and the nearest to the entrance, is of sand. Probably this was the site of the gravel washing plant. A system of gravel banks in the middle of the area serves to enclose shallow pools which may have been settling ponds for the muddy water coming from the washing plant. Water for this purpose was drawn from the relatively deep pond in the south-west corner.

Geology and Soils

Examination of the 1″ Geological Survey map (Solid and Drift) shows that there are several deposits of glacial sand and gravel running more or less due north from the bridge at Uffington. The most southerly of these stretches from Copthill Farm to Uffington village on both sides of the Deeping road and forms the first slight eminence to rise from the fen country stretching east to the Wash. There is another similar deposit of glacial gravel a mile north of this on the Essendine road and here again is a disused quarry, but of very different vegetative character. The reason for this difference is probably to be found in the underlying strata. The Copthill gravel lies over Kellaways Clay (below which is Kellaways Sand and then Oxford Clay). This means that there is an impervious layer of clay below the gravel, drainage is impeded and water-logging inevitably follows. On the other hand the pits near Morley Wood are immediately over Cornbrash — a porous limestone. Here drainage is complete and rapid so that the quarry bottom is permanently dry, and the difference in the vegetation is very striking.

The floor of the worked out sections of the Copthill pits seems at first sight to be clay. But this is obviously not a complete picture. Patches of it were of a much whiter colour, and it was while trying to trace the history of the pits that I learned from Mr. F. B. Gibbons, whose firm worked the gravel, that they found at the bottom of the gravel deposit, a yard-thick layer of silica sand over the clay. Samples taken from the upper part of the workings bear this out for a physical analysis showed that it is really a very fine sand, all of which passes through a 72 mesh sieve and 85% through a 144 mesh. Chemical tests proved that there is no alumina (Al_2O_3) in it. Fifty per cent is a fine Calcium Carbonate, nearly 10% Magnesium Carbonate, and Silica forms the balance of 40%. Its pH determined by the electrical method was 7·02, so that if anything it is slightly basic.

Litmus is turned red by acids and blue by alkalis, but although such an indicator tells us whether a solution is acid or basic, it does not show how strongly acid or basic it is. By using a series of indicators similar to litmus, which change colour at different points in the range, it is possible to judge the strength of the acid or alkali. This can also be done by electrical methods which are more accurate than those using indicators, and a scale has been devised for recording the results of these tests which is called the pH value. This is a logarithmic series in which neutrality occurs at pH=7·0. Acid reactions are always less than this and basic ones more. Every unit change in the scale means a doubling or halving of the acidity or otherwise of the medium. Thus a pH of 5 is twice as acid as one of 6.

The electrical methods are not easy to apply in the field, but coloured test papers are available which are easy to use and sufficiently accurate for most practical purposes. Tests were made with these at various places throughout the area and the results ranged from pH 5·5 on top of the gravel ridges to 6·8 in the sandy areas. The Sphagnum beds were 5·8, as was the peat round the Soft Rush and Bullrush beds. The Club Rush beds and the bed of the deep pool, both at 1 inch and at 4 inches depth, were all pH 6·4.

This I think shows that, despite the fact that there is still a considerable amount of basic material available in some parts of the lower strata just above the clay, the surface layers now remaining have been well leached, or washed free from lime, and so give in this restricted area an acid habitat which is most uncommon in this part of the county.

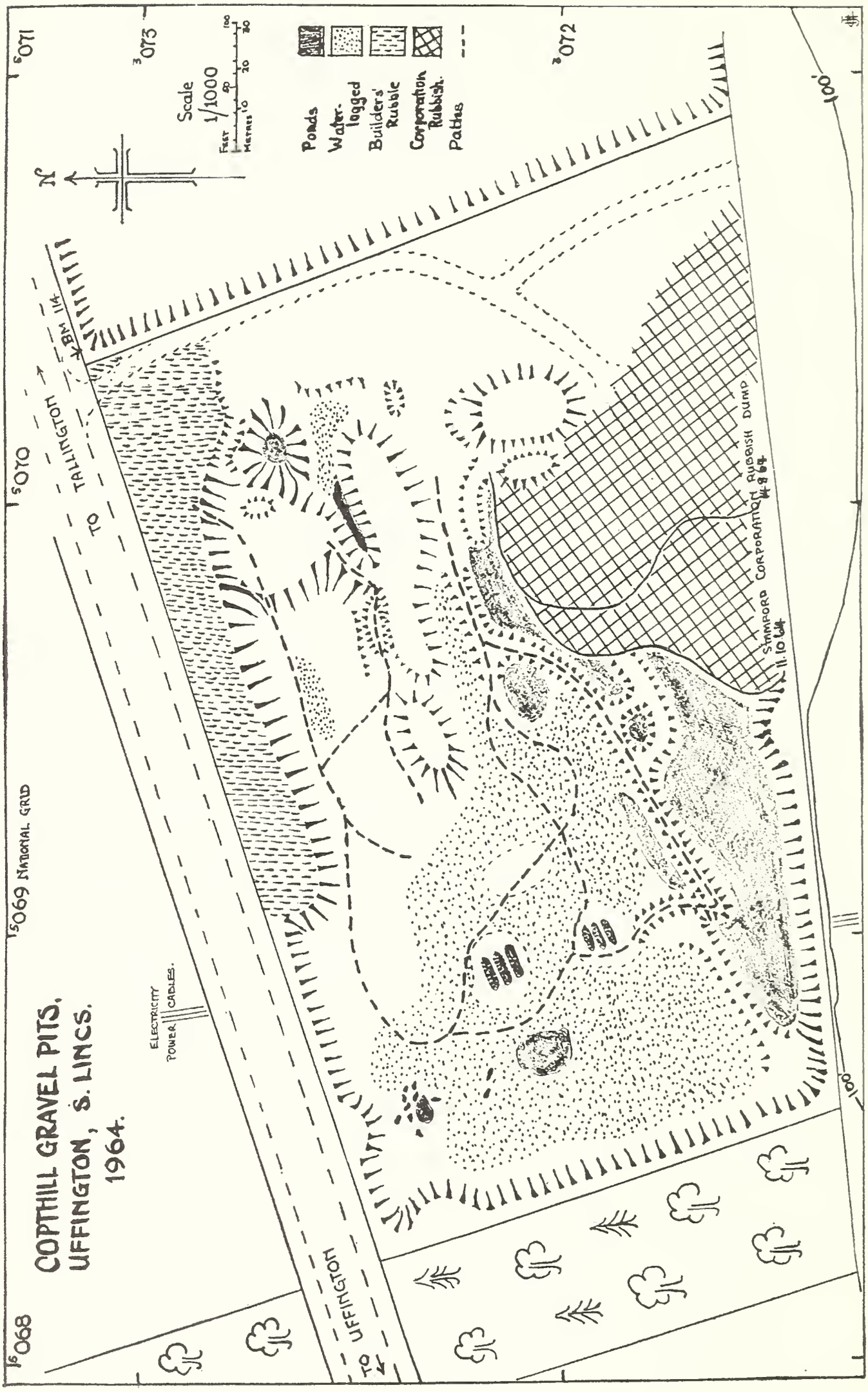
One other feature, which may be of interest to the geologists, seems to be related to this leaching of the upper layers. In one or two places there are small accumulations of rocks which look at first sight as if they were made of a coarse gravel concrete. But close examination shows that instead of the gravel being held in an artificial cement mortar, the binding agent is a more or less translucent material which has every sign of calcite. Also the worn pebbles of this conglomerate are largely of limestone mixed with an oolitic sand, though there is still a small quantity of the flinty pebbles found elsewhere in the pits.

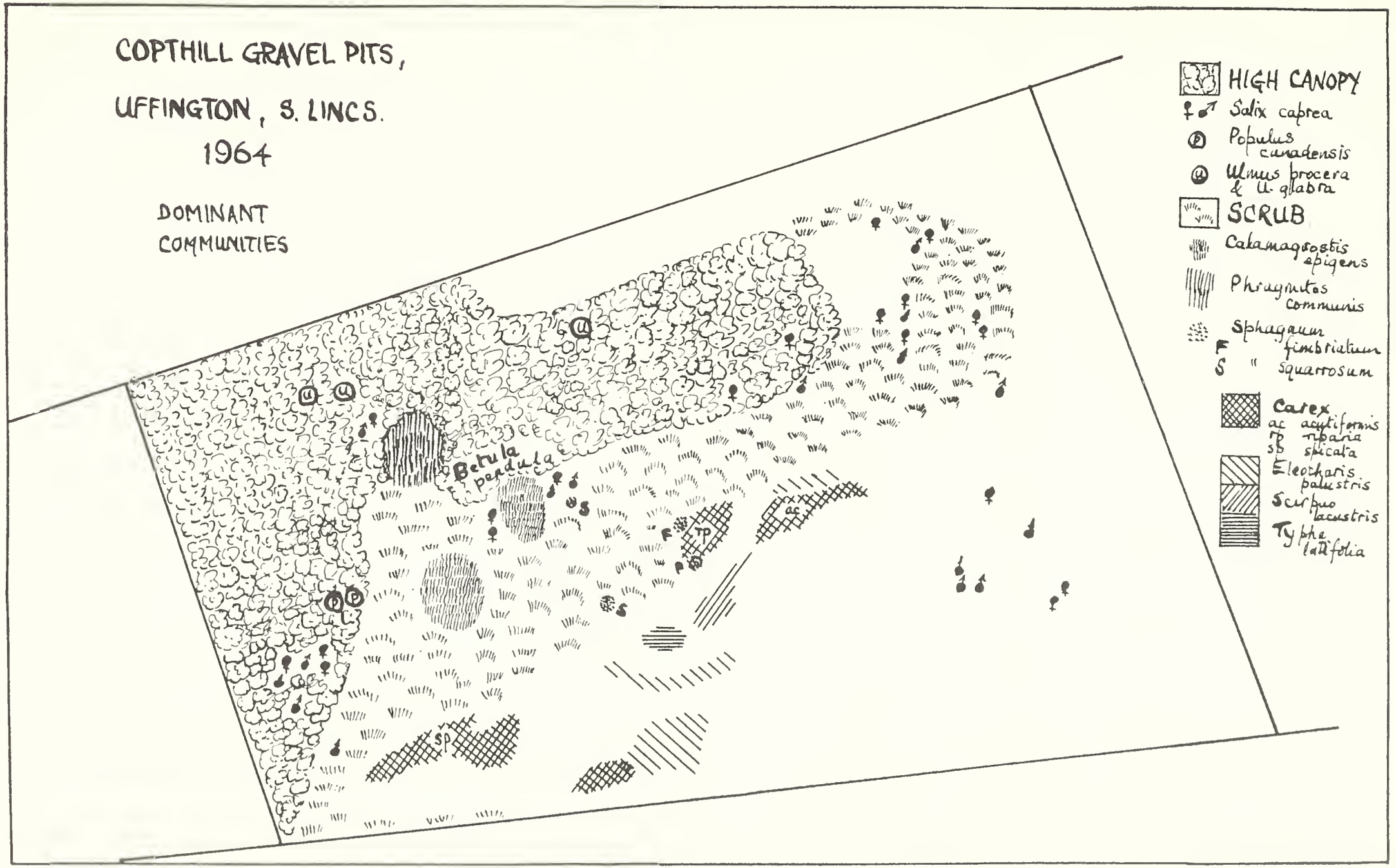
If I might hazard an opinion I would suggest that lime had dissolved out of the upper layers of the limestone gravel and this solution, on reaching the lower layers next to the clay had been held there long enough to crystallise out and in so doing had sealed the gravel into a solid mass.

Vegetation

The vegetation of the area can be divided into four main types.

1. On the east along the entrance road is an area of grassland which is at about the original land level, and has probably changed but little since before the quarries started. It is well-drained and includes Black Bent (*Agrostis gigantea*), Fine Bent (*A. tenuis*), Crested Dog's


COPTHILL GRAVEL PITS,
UFFINGTON, S. LINCS.
1964.
Scale 1/1000
Feet
Metres
Ponds
Water-logged
Builders' Rubble
Corporation Rubbish
Paths
N
TALLINGTON
TO
UFFINGTON
TO
ELECTRICITY POWER CABLES.
STAMFORD CORPORATION RUBBISH DUMP
11.10.64
BM 114
100'
5069 NATIONAL GRID
5070
5071
5072
5073
5068


COPTHILL GRAVEL PITS,
UFFINGTON, S. LINCS.
1964
DOMINANT
COMMUNITIES
HIGH CANOPY
Salix caprea
Populus canadensis
Ulmus procera & U. glabra
SCRUB
Calamagrostis epigens
Phragmites communis
Sphagnum fimbriatum
" squarrosum
Carex
ac acutiformis
rp riparia
sb spicata
Eleocharis palustris
Scirpus lacustris
Typha latifolia
Betula pendula
sp
ac
rp

Tail (*Cynosurus cristatus*), Yorkshire Fog (*Holcus lanatus*), Rough Meadow Grass (*Poa trivialis*), False Oat Grass (*Arrhenatherum elatior*) and Fescues.

2. On the north is a wide belt covering the top third of the area and roughly parallel to the road. This appears to have been the oldest part of the workings and has a high tree canopy, dominated by White Willow (*Salix alba*) with trunks up to 24 inches in diameter and 50 feet high.

3. A belt of Willow Carr occupies roughly the middle third.

4. Finally, a wedge-shaped area of open water and marsh gradually widening from its apex at the south-west corner, where the water is at its deepest, to the boggy shallows which peter out at the edge of the rubbish dump.

Apart from the grassland which has been subjected to interference from both man and rabbits, these areas provide a very good example of plant succession, a process whereby cleared land, if left to itself, even when covered by shallow water originally, proceeds from one type of vegetation to another, until it reaches a climax of forest trees. The ponds of the open workings provide a home for floating plants. Debris from these and from the water plants that creep in from the edges tends to fill up the ponds. As the water gets shallower so the species of plants growing there changes to suit the changing conditions. Deep water plants like the Bullrush and Reedmace are followed by sedges, mints and water-cresses which like shallower conditions, until shrub seedlings can find a place to root, only to be followed in their turn by the taller trees.

But that does not mean that the trees oust all other forms of plant life. Far from it. In the top area of these pits the trees form a leafy canopy about 50 feet high. They are mostly White Willows, but there is a number of other deciduous trees and these are mainly at the western end nearest the plantation and have probably spread from it. They consist of a few Elms (both Wych Elms and English Elms), several Sycamores and some tall Goat Willows, both male and female. Some of these are over nine inches in diameter at the trunk and up to fifty feet high having been drawn up by the surrounding White Willows.

There are other Goat Willows spread round the margins of this area, and being the earliest of all the Willows to flower they stand out prominently among the rest for about a week until the other species start to flower. The standard floras say that the bark of this species is coarsely fissured but the trunks of many, though not all, of the trees here are smooth except for a few star-shaped lenticels, and this holds good even for some of the larger trees.

About the middle of the southern edge of this High Canopy area, is a section where Silver Birch is dominant. Some of the trees here are quite big and from them seedlings and saplings are spreading out into the Willow scrub below.

The Ash, which is by far the commonest tree in the country round about, is represented by only a few saplings on top of the bank beside the plantation. It is obviously not at home in the water-logged soil of the pits.

Below the high canopy formed by the tree tops is a second layer formed by tall shrubs most of which seem to be relicts from the general scrub vegetation which preceded the trees. These are not very plentiful and consist mainly of Hawthorns and Elders with an occasional Sycamore. Beneath this in turn is a third layer of undershrubs or taller herbs and this consists mainly of brambles of which the Dewberry seems to be the most prominent member, or Nettles with occasional plants of Burdock (*Arctium minus*) or Herb Bennet.

Finally comes a ground layer of lesser herbs and mosses, with the blue Sweet Violet, Three-nerved Sandwort and Dog's Mercury where the Brambles or Nettles are not too dense. In places small patches of Common Forgetmenot (*Myosotis arvensis*) and Chickweed occur in the dryer patches and an odd plant or two of Lady's Smock (*Cardamine pratensis*) where conditions are wetter.

There is another Violet here too which is rather perplexing and seems to show some of the characters of both the Wood Violets, *Viola reichenbachiana* and *Viola riviniana*. The spur is deep purple, and is thick and tapering though not furrowed. The sepals have very definite appendages. It may be a hybrid, but if so there is no sign of either of the parent species and there is a fair quantity of the plant in question. Incidentally *Viola reichenbachiana* flowers again regularly in the autumn. The floras record this phenomenon for *Viola riviniana* only, which in my experience does not happen so regularly.

All these are spring flowering plants which use the early part of the year for their growth before the bulk of the light is cut off by the leaves of the trees and shrubs above them.

The mosses of this part consist very largely of *Mnium undulatum*, *Eurhynchium praelongum* and *Brachythecium rutabulum*, with a little *Fissidens taxifolius* in some places. On the damp banks of some of the steeper hollows are small patches of the liverwort *Pellia epiphylla*.

In the more open parts the tree trunks do not support a very varied range of epiphytes. The lichens *Lecanora conizaeoides* and *Lepraria incarna* are everywhere, and small patches of *Parmelia sulcata* are on many of the larger trunks. But where the trunks are sheltered by the closeness of the shrub layer, and especially on those that have a considerable inclination, mosses and liverworts find a niche on the upper surface while the lower surface is almost bare. One such trunk had a large patch of the leafy liverwort *Lophocolea heterophylla* at its base and a covering of mosses of several different kinds for about six feet up the trunk ending in the small cushions of *Dicranoweissia cirrata*. One crack in the bark formed a rain channel, in the bottom of which were patches of the same liverwort interspersed with a thalose liver-

wort *Metzgeria furcata.* In addition to the three common lichens mentioned earlier, and at about four feet up, was a tiny lichen of another different type — *Ramalina farinacea.* In the wetter parts of the country this lichen forms tufts up to four inches long like a shaggy beard, but here where it is the first record for the south of the county, it is only the size of a small toothbrush moustache. The atmosphere in this part of the wood must be very humid for such a lichen to exist at all in an area with a rainfall of no more than twenty-five inches.

Some wet conglomerate rocks under this tree were almost covered with the moss *Brachythecium rutabulum*, and this was interspersed with small patches of limestone covered with a gelatinous green skin dotted with small black spots, which turned out to be another county record — a lichen called *Verrucaria aethiobola.*

The Carr or scrub area is dominated by bushy Willows interspersed with occasional saplings of Birch and the odd Hawthorn bush. This is an area of frequent shallow pools and is permanently wet except in the driest of summers. The Willows are mainly *Salix cinerea* s.sp. Cinerea. This is an uncommon form of the Common Sallow and is more or less restricted to wet places such as this. Elsewhere it is replaced by its very close relative *Salix atrocinerea.* Both these may be separated from Goat Willow by reason of the raised striations which occur under the bark and most noticeably in two year old twigs. As well as growing in wetter places *S. cinerea* can be separated from *S. atrocinerea* by its more densely bushy habit, and by its leaves which are tomentose all over below and neither rust-coloured nor harsh to the touch. Dotted throughout this area is the occasional bush of Goat Willow, which, as mentioned earlier, shows up so well in early Spring, and on the margin of the big pool there are a few bushes of *Salix purpurea* — the purple Willow. In this species some of the leaves are more or less opposite and the twigs under the bark are very yellow. Towards the entrance there is a group of bushes showing several forms of the Common Osier (*Salix viminalis*). Amongst them are probably some hybrids, but I have not yet gone into these. Another bush at this spot has many of the characters of the Eared Sallow (*Salix aurita*). The leaves however are much too big and again it may well be a hybrid.

Other tree species are to be found occasionally in this area mainly towards the plantation. There are Elm Saplings (probably *U. procera*), two fair sized Black Poplars (*Populus canadensis*) with a few much smaller saplings and a fifteen foot sapling of Hornbeam. A couple of Dog rose bushes are struggling to maintain themselves in the increasing shade. There are signs too of other species trying to establish a footing. A couple of Horse Chestnuts (*Aesculus hippocastanum*) a two-year old and a three-year old seedling were growing well, and Turkey Oak seedlings up to three or four years old were in evidence in several places, probably bird-sown from the big tree at the roadside in the plantation. There was even a foot-high Lawson's Cypress (*Chamaecy-*

paris lawsoniana) growing near the Sphagnum patches.

The ground flora here is of exceptional interest, and the bryophytes in particular. In the case of the Bog Mosses, *Sphagnum fimbriatum* and *Sphagnum squarrosum*, there are only two other records in the Vice County, one at Woolsthorpe near Grantham and the other at Hartsholme near Lincoln. Of all the Bog Mosses these two require the least acid conditions.

The pools themselves, where there is more or less permanent standing water and considerable shade, show no vegetation even though the water depth is never more than a few inches. At their margins *Acrocladium cuspidatum* grows both in and out of the water and where the shade is not too deep *Drepanocladus aduncus* appears in the pools and *Aulacomnium palustre* at the marshy edges.

Right in the middle of the Carr are four patches of Sphagnum all in deep shade where the Willows are thickest. All seem to have started from the base of a Willow bush and have spread round it. The largest patch — *S. squarrosum* — is about five feet across and one of the *S. fimbriatum* patches is about half this size while the other two are smaller.

Flowering plants immediately round the *S. fimbriatum* consisted of Yorkshire Fog (*Holcus lanatus*), *Carex acutiformis*, Hoary Ragwort (*Senecio erucifolius*), Coltsfoot (*Tussilago farfara*) Marsh Willowherb (*Epilobium palustre*) Common Horsteail (*Equisetum arvensis*) Wood Dock (*Rumex sanguineus*) Spotted Orchid (*Dactylorchis fuchsii*), Brambles and Wild Strawberry, while not far off were a couple of plants of Common Buckler Fern (*Dryopteris dilatata*). The moss *Acrocladium cuspidatum* was abundant round the Sphagnum and amongst it was a little of the leafy liverwort *Lophocolea bidentata* and a few pieces of *Riccardia sinuata* — a small thallose liverwort.

In two places the scrub opened out and coarse grasses were dominant. *Calamagrostis epigejos* or Brush Grass covered one patch and Reeds (*Phragmites communis*) the other. Little else could meet the fierce competition of these strong growers, but a few common bryophytes — *Pellia fabbroniana* (o), *Eurhynchium praelongum* (f), *Mnium undulatum* (f), *Mnium punctatum* (o) and *Fissidens taxifolius* managed to keep a foothold under the Reeds.

A few paths have been kept open through the scrub. Some of these followed the bank tops with no unusual plants — Wild Strawberry Ragwort, Selfheal, Creeping Cinquefoil, Common Sedge (*Carex flacca*), Thyme leaved Sandwort and Speedwells.

On the paths in the damper parts the mosses were dominant. *Acrocladium cuspidatum* was abundant, though in places this gave way to *Rhytidiadelphus squarrosus* or *Pseudoscleropodium purum*. Occasionally *Bryum pseudotriquetrum* could be found amongst the other mosses. In one spot close to one of the ponds was a very small patch of *Climacium dendroides* growing up out of the grass like miniature trees, a habit of

growth which makes it well able to cope with the varying water levels it experiences here. With it was a little *Brachythecium revulare*, another moss which can thrive in very wet conditions.

In May, 1958, on my second visit to the pits, in more or less bare patches under some of the densest willows, was a large carpet of the liverwort *Marchantia polymorpha*, a wonderful sight with its hundreds of minute umbrellas opened up. This liverwort is very hard to find now. Only a small patch remains among the *Acrocladium cuspidatum* near the largest patch of Sphagnum. This seems to have been an example of a population explosion in which a particular species, usually in a new habitat, multiplies exceptionally rapidly up to an abnormal peak and then, having perhaps exhausted itself or some essential factor in its environment, dies rapidly back to its normal inconspicuous place.

The Pond

The lowest area, and probably the last worked, contains the deep water pond and for these two reasons perhaps has remained more or less open. At the deepest point there is normally several feet of water, but in some summers it dries up.

Until it became polluted by the refuse dumped nearby, this pond contained one of the Water Crowfoots (*Ranunculus aquatitis* s.sp. peltatus), and a mass of the water moss *Drepanocladus aduncus*. As the pond gradually dried out in July, 1964 a thick carpet of this moss was left on the bottom. In a very short time a large crop of Gipsywort (*Lycopus europaeus*), Red Goosefoot (*Chenopodium rubrum*) and Marsh Cudweed (*Gnaphalium uliginosum*) appeared all over the area together with smaller quantities of both water Speedwells (*Veronica anagallis aquatica* (o) and *V. catenata* (r)) three Willow Herbs (*Epilobium palustre*, *E. parviflora* and *E. adenocaulon*), Celery Crowfoot (*Ranunculus celeratus*), Black Nightshade (*Solanum nigrum*) and fresh growths of Water Mint (*Mentha aquatica*) and the cut-leafed mud form of Water Crowfoot (possibly *Ranunculus aquatilis*).

On the margins of this pond were considerable beds of Spiked Sedge (*Carex spicata*) followed by an area of Club Rush (*Eleocharis palustris*). Above this were some shallow pools separated from the main pond by gravel banks. These showed an interesting succession from Hard Rush (*Juncus inflexus*) through Horsetails (mainly *Equisetum fluviatile*) and true Bullrushes (*Scirpus lacustris*) to Reedmace (*Typha latifolia*) in the deeper parts.

Where the Willows meet this open area the lesser Pond Sedge (*Carex acutiformis*) is abundant and extends for some way among the scrub which is spreading into the sedge area. In one place where the water is rather deeper, the Greater Pond Sedge (*C. riparia*) was the dominant plant.

Two dry areas are kept more or less open. The first on the gravel by the disturbance caused by traffic movements and spasmodic winning of gravel, and the other, on the sand, was until recently kept open by

the poultry. Both have some interesting plants to show. Blue Fleabane on the gravel, and its Canadian counterpart (*Engeron canadensis*) on the sand. Whitlow Grass appears in both, and the rare Field Buttercup (*Ranunculus arvensis*) appeared once on the open gravel working. There is a number of roses and brambles in this part which shows an affinity with the other pit near Morley Wood.

In this area and on the dumped builders' rubble along the northern margin are many alien plants which have come in with the rubbish. Some like Dusty Miller (*Cerastium glomeratum*) and Tree Mallow (*Lavatera arborea*), Candytuft, Garden Poppies, Larkspur and Raspberries and Loganberries are garden escapes. *Verbascum phlomoidea*, an exotic Mullein with very large flowers has been happily growing on this site to my knowledge for eight years and was well established when I first noticed it. Ivy leaved Toadflax (*Cymballaria muralis*) is abundant on the area near the gate. Other garden weeds are Fever Few, Annual Mercury, Oxford Ragwort and Hoary Cress which have all found a home here, though some of them would not last long as competition grows.

When we compare this site with the gravel pit near Morley Wood we see a very different picture. Both are pits in the same sort of gravel and worked more or less at the same time. Yet one is wet and rather acid, with tall trees and Willow Carr and a bryophyte flora of forty species, while the other is dry and grassy with no trees and only half a dozen bryophyte species and no lichens to speak of. What bushes it has are mainly roses or Hawthorns with a few brambles, and its flora is distinctly base-loving with Marjoram, Wild Liquorice, Wild Thyme, Wild Basil, Wild Parsnip, Greater Knapweed and Knapweed Broomrape. Here it is not only the actual dryness of the well-drained soil that has brought this about, but also the rabbits.

Despite the large decline of the rabbit population in recent years there are still enough left to feed the foxes and keep the grass in the bottom of the pit fairly well mowed, while tree seedlings are never allowed to develop. In the Copthill Pits, on the contrary, the water table is so high that only on the highest spots at the north-east corner can the rabbit have any effect or find a home. Here Willow Carr has been able to develop quickly, followed by *Salix alba* and Silver Birch with signs of harder woods to follow.

For me this survey has proved a very rewarding one and has produced several unexpected records. But it has been, I fear, confined mainly to flowering plants, bryophytes and lichens. Other forms of life have been sadly neglected, only one bird, and that a domesticated one. Some half a dozen fungi are all that I have been able to name, and about as many snails. Insects I have left severely alone. However, the opposite is not true, for nearly every mosquito in the pits, and they were not few, has at one time or another investigated the intruding man and sampled his blood. In fact their bites were more of a hazard than the pellets from Mr. Teesdale's gun!

A PRELIMINARY LIST OF LINCOLNSHIRE PSOCOPTERA

T. R. New, B.Sc.

The Psocoptera, or Corrodentia, are one of the least known groups of insects. They are distantly related to the true bugs (Hemiptera), and are probably close to the basal stock of this group. Although differing from them in some important morphological characters they share with the other Hemipteroid orders an incomplete metamorphosis, in which the nymphal stages closely resemble the adults in general form.

Some eighty species of Psocoptera are recorded from Britain, but because of their small size, difficulty of identification and, for the great majority, lack of any economic importance, they have not received the attention of more than a very few entomologists. Two basic ecological types are found in the order:

1. Species which are found indoors and which feed on yeasts, flour and fungal debris. They may frequent stored products, are often apterous, and are typified by the genus *Liposcelis* Mots. — the 'Booklouse'.

2. Species found naturally on vegetation, especially trees, where they feed by grazing on *Pleurococcus*, lichens, fungal spores, and general debris. Members of this group are more diverse in their morphology and biology, and have spread into several distinct habitats, for example, foliage, bark, leaf litter, and low vegetation. The adults of many of these species are winged.

A number of species of Psocoptera have been found during casual insect collecting around Mablethorpe, Alford, and Louth during the summers of 1963-65. These are enumerated in the following list, using the terminology of Broadhead (1964), and some brief notes on the biology of the various species are appended in context. This list is necessarily far from complete, but it is hoped that publication of these records will induce other collectors in Lincs. to take up the order. There do not appear to be any previous records for the county, although a number of records exist for Yorks., Notts. and Norfolk. All the species found are known to be widely distributed in Britain. I am very grateful to Messrs. A. E. Smith, O.B.E., M.A. and F. T. Baker, M.A. for the trouble they have taken on my behalf in searching for previous Lincolnshire records of this group.

Trogiidae

Trogium pulsatorium (Linn.). An ubiquitous domestic 'booklouse'. One female found in a house at Mablethorpe, April, 1965.

Cerobasis guestfalica (Kolbe). Well, 1964, Louth (Hubbards' Hills) 1965, Mablethorpe, 1964-5. A wingless species common on bark, and collected from conifers and hawthorn.

Liposcelidae

Liposcelis paetus Pearm. Found indoors at Mablethorpe in 1964-5.

Psocidae

Amphigerontia contaminata (Steph.), Well, 1964.

A. bifasciata (Latr., in Coq.). Well, 1964, Mablethorpe, 1964-5, from old hawthorn. These two species are ecologically very similar and are found mainly on bark encrusted with lichens and *Pleurococcus*. Eggs are laid in groups on the bark and are covered with a crust of bark flakes. There are six nymphal instars, but the nymphs of the two species are at present indistinguishable. Both species are probably bivoltine.

Mesopsocidae

Philotarsus picicornis (Fab.). Mablethorpe, 1965 — one male and three females from hawthorn. This species is ecologically similar to *Elipsocus*. The eggs of both genera are laid singly on bark and covered with debris; they are mutually indistinguishable. There are six nymphal instars.

Cuneopalpus cyanops (Rost.). Well, 1964, two females from conifers, to which the species is largely confined. Very closely related to *Elipsocus* which it resembles in morphology and biology. Bivoltine.

Elipsocus hyalinus (Steph.). Well, 1964, Mablethorpe, 1964, from ash, elder, hawthorn and horse-chestnut. Adults and nymphs were numerous on all the above trees. The male of this bark-frequenting species is unknown in Britain, although a few examples have been reported from the continent.

E. westwoodi McLach. Mablethorpe, 1964, one male and two females from hawthorn.

Mesopsocus unipunctatus (Müll.). Mablethorpe, 1964, two females from sea buckthorn. The two British species of *Mesopsocus* show striking sexual dimorphism, the males being winged and the females apterous. Both are found on many species of trees and shrubs.

Pseudocaeciliidae

Lachesilla pedicularia (Linn.). Mablethorpe, 1963-5, Louth (Hubbards' Hills), 1964, Saltfleet, 1964-5. Typically a litter psocid, but enters houses on occasions, especially during late summer when, as in *Ectopsocus briggsi*, there may be pronounced flight activity.

Reuterella helvimacula (End.). Mablethorpe, 1965, from blackthorn. Both adults and nymphs of this species live in groups beneath loose silken webs spun on twigs.

Peripsocus phaeopterus (Steph.). Mablethorpe, 1965, one male from hawthorn.

Ectopsocus briggsi McLach. Mablethorpe, 1964-5. Common. This species is found both in litter and on trees — the latter mainly in late summer, and nymphs and adults hibernate. Eggs are laid in batches and covered with a silken web; those laid in late summer overwinter and hatch in April or May, after which several generations follow through the season. There are six nymphal instars.

Polypsocidae

Stenopsocus immaculatus (Steph.). Mablethorpe, 1963-5, Beesby, 1964, Aby (Mother Wood), 1964-5, from blackthorn, hawthorn and lilac. Common and foliage-frequenting. The two sexes are equally represented.

Caecilius flavidus (Steph.). Mablethorpe, Alford and Well, 1963-5. Beaten from the foliage of elder, hawthorn and horse-chestnut in small numbers. Very widely distributed and the most typical of the foliage frequenting psocids. It is completely parthenogenetic, the male being unknown.

Graphopsocus cruciatus (Linn.). Mablethorpe, 1964, a single female from hawthorn.

REFERENCE:

BROADHEAD, E. (1964). 'Psocoptera' in Kloet, G. S. and Hincks, W. D.: *Check list of British Insects* 2nd ed. 23-25. Royal Entomological Society of London.

REPORT OF THE HONORARY GENERAL SECRETARY 1966-67

At the Annual General Meeting when I took office on 5th March, 1966 the retiring President, Mr. J. H. Chandler, delivered his Presidential Address on "The Uffington Gravel Pits — an Ecological Study" which is published elsewhere in this issue. A year later, on 11th March, 1967, the Officers listed in this issue were elected. The intervening year has been more active than usual for your Executive Committee. Because of the unavailability of Rear Admiral A. D. Torlesse, a Special General Meeting was held on 19th November, 1966, at which Mrs. I. Weston, B.SC. was elected President-elect. She duly took office on 11th March, 1967 as the 55th President of the Union, and only the fourth lady to occupy this position (following Miss S. C. Stow, 1914, Miss E. J. Gibbons, 1939 and Miss G. M. Waterhouse, 1955-56).

During the year the Executive considered and evolved a Constitution. The most the Union had aspired to before was a set of Rules which had been modified over the years by decisions of the Executive and

Annual General Meetings. No comprehensive constitution existed. What is printed in this issue was approved by the Annual General Meeting on 11th March, 1967. In many ways it only confirms current Union practice.

In one respect, however, a step has been taken towards the nineteenth century idea of some regional organisation within the Union. This is incorporated in Clause 5 which commends the idea of the formation of a Local Group of Union members. The success of these undoubtedly depends on the drive and leadership of one person. The first Group is that for South Humberside, with Mr. G. S. Phillips as Secretary.

The Annual General Meeting also approved a more logical arrangement of Sections under more general divisions. Presidents of Sections are elected on the basis of their knowledge and standing in the subject. Sectional Secretaries are elected to collect and collate records and information. Usually they are in touch with the main workers in their field, but they are just as interested in the observations and records of the non-specialist member. They ask you to use the names, addresses and telephone numbers printed at the front of this issue and send them any relevant data.

Active Sections are the key to the scientific work of the Union. Under the Constitution it is possible for Sections to elect their own Committees to stimulate, promote and organise the specialist interest. The Union was founded to promote the thorough investigation of all aspects of Natural History in the County. If anything there is a more urgent need of this now than ever before with increasing urban and industrial development. While lists and records as such have their value, it is hoped that members may also engage in ecological studies to try and answer the *why?* as well as the *what?* and *where?*

The Hon. General Secretary of the Lincolnshire Trust for Nature Conservation asks that where members wish to work on one of the Trust's Reserves permission should first be obtained from him or the local Reserve Officer. It is also very important that a copy of the record of finds or of an investigation should be supplied to the Trust Secretary (as well as the appropriate Union Section Secretary) after the visit.

As part of National Nature Week (23rd — 30th April, 1966) the Union organised a special mid-week evening meeting for Juniors and interested pupils from Lincoln schools. A well-attended meeting heard three illustrated talks on Wild Orchids of Britain (Mr. G. S. Phillips), The Insect World (Mr. G. N. Holland, B.Sc.) and Birds and Mammals of Lincolnshire (Mr. G. L. A. Posnett). Also during the week a Lincoln Museum Nature Club was formed.

Eleven Field Meetings were held during 1966. The first in National Nature Week took the form of a Nature Trail in Hartsholme Park, Lincoln, for local schoolchildren. In May we met in Great Scrubbs

Wood, near Wragby, and in June at Wickenby Wood near Market Rasen — primarily for botany and arachnology. Later in June the geologists were catered for in Clipsham Old Quarry, and Pickworth Great Wood in Rutland was also studied. Also in the south-west the fifth meeting was at Woolsthorpe Wharf and in Cliff Wood, along the Grantham Canal and Longmoor Lane. Later in July Elsham Park near Brigg was the venue, followed by two other meetings in the north at Burton Stather and Scotter. A special occasion, particularly for ornithologists, was the meeting at Spurn Head in September, followed by the annual Fungus Foray at Roxton Wood, near Immingham. The final meeting, a full day at Gibraltar Point, was not as well attended as other Field Meetings during the year.

The winter programme opened with an illustrated lecture on "Spring Migration in Morocco" by Robert Spencer, B.T.O., Research Officer, attended by over forty members and friends. The November meeting to receive Section Officers' Reports was attended by over forty members and proved a most interesting meeting. Detailed reports are printed elsewhere in this issue, and show the wide variety and depth of study and research being undertaken by members of the Union. These vary from a survey of bat colonies to the use of lichens as indicators of air pollution from Scunthorpe steelworks and from the study of beach stones to the use of a fairy shrimp as an indicator of effluent pollution on the Humber Bank.

In January Mr. R. K. Cornwallis, a past-President of the Union, gave an illustrated talk on "Natural History in Iran" as a result of his recent visit to that country. This meeting was attended by eighty members and friends. The following month the Photographic Section arranged a highly successful meeting when slides and films were shown.

At the Annual General Meeting in March, 1967 Mr. R. K. Cornwallis reported on behalf of the Union's representatives on the Council of the Lincolnshire Trust for Nature Conservation Ltd. He mentioned the setting up of Area Groups, the part played by the Trust in the County Countryside Committees in Lindsey and Kesteven, and the Trust's film "Nature in Trust" (which was given its premiere in April). He made mention in particular of the management problems of Reserves; in this connection there is a constant need for specialist information, where the Union has an important part to play. The Standard Recording Scheme, for use on Reserves, could be very useful for Union Field Meetings.

The retiring President, Mr. A. D. Townsend, M.B.O.U., made a plea for a membership target of 500 during the year. Recruitment, and interesting those with a bent towards natural history in the work of the Union rests largely with existing members. If you know of anyone who may be interested in membership, let me have their name and address and I will write to them and send relevant literature.

As you will see from the list of Officers, Mr. A. E. Smith, O.B.E., M.A. was elected President-elect. Both Mr. R. K. Cornwallis and Mr. F. T. Baker paid tribute to the work of Mr. Smith in the conservation of nature in the county over the past twenty years (he served on the Lincolnshire Nature Reserves Investigation Sub-Committee from 1943, became Secretary of the Nature Reserves and Wildlife Conservation Committee in 1947 and Hon. General Secretary of the Lincolnshire Naturalists' Trust on its formation in 1948) and regret was expressed that the pressure of work involved with this was the very reason why he had not been President before this time.

Your Executive Committee has re-examined the policy with regard to Field Meetings. These were designed as a means of group and individual investigation of the natural history of the county. They are also a means whereby members with more general, rather than specialist, interest, may add to their own knowledge. The primary purpose of a Field Meeting is scientific. With the growing pressures on the countryside the Union can play a valuable part in keeping certain places and areas under observation and study, by recording information on the Standard Recording Scheme and in assisting the Lincolnshire Trust for Nature Conservation in such a way as to become *the scientific arm of conservation.* The future pattern of Field Meetings will be based on these broad aims and the Field Secretaries have in mind a series of systematic surveys. It is also planned to link one field meeting, perhaps outside the county, to a winter lecture.

Members wishing to make up their own set of *Transactions* will be interested to know that copies of most issues from 1908 are still available, and I shall be pleased to answer specific requests.

Finally, I should like to thank the Executive Committee and all members who have helped me in my first year in office.

GEOLOGY

A TEREBRATULA BED AT CLIPSHAM

P. E. KENT, D.SC., PH.D., F.R.S., F.G.S.

During the Lincolnshire Naturalists Union field meeting in the quarries of Soil Fertility Co. at Clipsham (Grid 982-156) two of the juniors located numerous Terebratulae weathering out of loose blocks of limestone. More deliberate examination subsequently confirmed that this rich occurrence was in the Lincolnshire Limestone, and that the source was a marly oolitic limestone welded to coarse, raggy oolite, forming the base of the Clipsham Stone. The section in a typical block was as follows:

Clipsham Stone: Coarse shelly rag, partly blue hearted, the matrix of irregular and flattened ooliths, with small *Ostrea*, echinoid fragments, etc. 1 ft. 6 ins.

— Gently undulating heavily bored surface —
Pinkish-buff finer grained limestone, oolite with a marly matrix, locally slightly ferruginous, soft weathering. The underside shows a polyzonal pattern of rounded ridges (? filled mud-cracks) Abundant Terebratulae, *Nerinea* sp., *Modiola* sp., "*Trapezium*", corals, crustacean fragment. 8 ins.

The quarry foreman, Mr. Preston, stated that the Rag is the bottom bed of the Clipsham stone, and that at the time when this was hand-worked for freestone it was customary to take this bed and trim off the fossiliferous marly limestone forming the lowest part of the blocks.

The heavily bored surface of the marly limestone, almost reduced to a sponge by the crypts of marine organisms, indicates a period of erosion which can be correlated with the widespread break at the base of the 'Top Beds' — particularly in the Kettering district.

The brachiopods include Epithyrids, *Zeilleria wilsfordensis* and other long looped forms, and indicate correlation with the 'Roadstone bed' of the Lower Lincolnshire limestone at Castle Bytham (Richardson, 1939). The Upper Lincolnshire limestone is therefore represented only by the 12 — 15 feet of the Clipsham Stone.

REFERENCE:

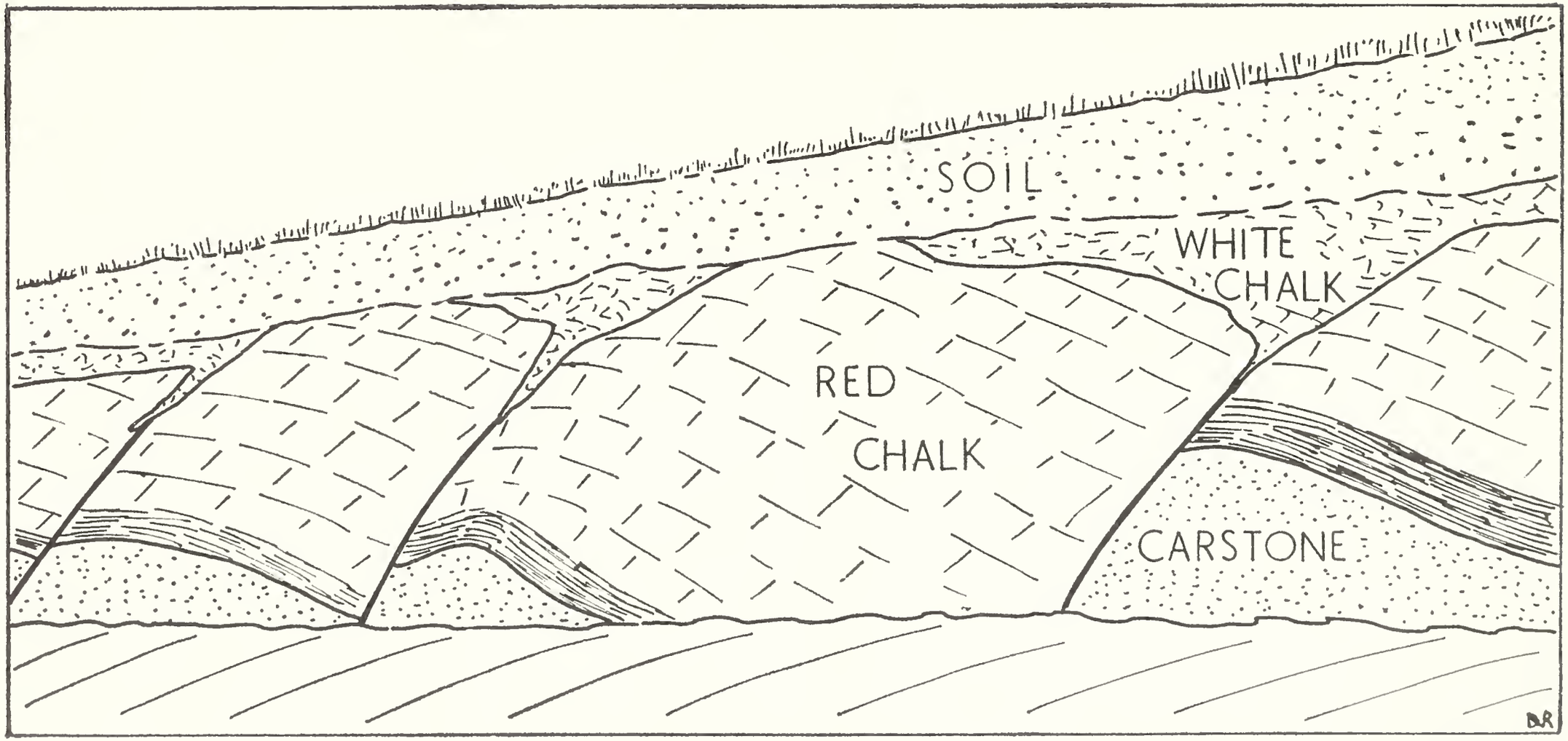
RICHARDSON, L. (1959). Weekend Field Meeting in the Stamford District. *Proc. Geol. Ass.* **50,** 29-45.

AN EXPOSURE OF RED CHALK AT INGS FARM, BELCHFORD

D. N. ROBINSON, M.SC.

Just west of the Bluestone Heath road at Ings Farm (grid ref: TF/298772) the true escarpment of the Wolds overlooks the head-waters of the River Waring. Beyond is the Lower Cretaceous ridge, capped with glacial drift. The scarp line which follows the line of the Heath Road is steep enough in places to defy cultivation, but at Ings Farm an effort was made in 1964 to terrace part of the slope to gain a few extra yards of cultivable land. The result was to expose the solid geology on the hillside for a distance of 150 yards, varying from 15 feet in height down to nothing at the end of the spur.

The exposure was examined when relatively fresh in 1965, but weathering of the freshly exposed shattered rock has considerably reduced its value for study since then. The accompanying sketch shows the sequence:



Sketch, looking N.E., of faulted Red Chalk exposure, Ings Farm, Belchford.

White chalk and chalk rubble.

Red Chalk: progressing from a dark red marl at the base to a lighter pink chalk at the top.

Carstone: very friable khaki-coloured sandstone.

The interesting feature is the faulting and throw of the beds. The bending of the beds and the infiltration of white chalk into the fault lines suggests something other than tectonic reasons for this feature. The Wolds were completely covered by ice during the Penultimate Glaciation, the ice moving in a generally north-south direction. At Ings Farm the direction of ice movement was roughly normal to the line of the scarp. It is suggested that the pressure of ice riding over the edge of the scarp fractured and bent the strata. Some of the thin white chalk cover fell into the wedges and cracks opened up along the fault lines (perhaps partly assisted by frost action).

In the Red Chalk the lower marl yields the small belemnite *Neohibilites minimus* in abundance, but the best examples of the 'lamp shells' *Terebratula dutempleana* and *T. biplicata* were obtained from the slightly harder beds immediately above the marl.

I am grateful to Mr. D. W. Kelsey of Belchford for permission to examine this site.

BOTANY

Miss E. J. Gibbons

Not an outstanding year botanically, but a good deal of work was done by several keen members in various parts of the county.

Hartsholme: A fine day among pleasant surroundings. Dog Violet (*Viola canina*) and Heath Bedstraw (*Galium saxatile*) were about the most interesting plants of this gravel area.

Hatton. An ancient Lime wood (*Tilia cordata*) with fine large trees. Curiously there was no Dog Mercury and no Wood Forget-me-not. Great Woodrush (*Luzula sylvatica*), Hairy Woodrush (*L. pilosa*) and Lilies of the Valley (*Convallaria*) were in small quantity. In the adjoining Minting Wood, which had been recently felled, there was some Water Avens (*Geum rivale*) normal and with pale green stems and pale pink flowers, and also Upright St. John's-wort (*Hypericum pulchrum*). Great and Little Scrubbs nearby had Yellow Archangel (*Galeobdolon luteum*), Early Purple Orchis (*O. mascula*) and Wild Service Tree (*Sorbus torminalis*).

Wickenby Wood. This had been felled during the war and had grown up very thick with saplings. The Forestry Commision are

beginning to thin it out and here the June flowers were blossoming well. Ragged Robin (*Lychnis floscuculi*) and Wild Stawberry (*Fragaria vesca*) were flowering.

Clipsham Quarry. This quarry, in Rutland, was visited at the end of June. There was a good show of limestone plants.

Woolsthorpe. This is an unusual part of south Lincolnshire, with the Grantham Canal and an old clay pit on acid soil. Arrowhead (*Sagittaria*) was in full flower in the old lock. Wild Everlasting Pea was seen near the ironstone railway, being first recorded there in 1892. Spotted Orchis (*O. fuchsii*), Greater Bird's-foot Trefoil (*Lotus-uliginosus*) and Lady Fern (*Athyrium filix femina*) were in the clay pit.

Elsham and Wrawby Moor. This is a very interesting piece of old moorland visited by the Rev. John Ray about 1700; also visited by James Britten F.L.S. in 1862, when Sundew and Marsh Gentian grew there. Two kinds of Cottongrass, Marsh Speedwell (*Veronica scutellata*) and Marsh Pennywort (*Hydrocotyle vulgaris*) were found.

Burton Stather. This is the only place in Lincolnshire where a steep escarpment descends to maritime conditions. Sea Aster (*A. tripolium*), Sea Milkwort (*Glaux*) and other salt loving plants grow at the base of the steep cliff and calcareous flowers and grasses join them above the tideline.

Scotter. Among the new plantations on Hardwick Hill, and small patches of old heath and bog near it, Sneezewort (*Achillea ptarmica*), Trailing St. John's-wort (*Hypericum humifusum*,) Milk Vetch (*Astragalus glycyphyllos*), Crown Vetch (*Coronilla varia*), Purple and Yellow Loosestrife (*Lythrum and Lysimachia vulgaris*), Viper's Bugloss (*Echium vulgare*), Meadow Thistle (*Cirsium dissectum*) and Ploughman's Spikenard (*Inula conyza*) were seen.

Roxton Wood. The Fungus Foray was not very likely to produce many flowers. Angelica (*A. sylvestris*), Centaury (*Centaurium minus*) and Whorled Mint were still flowering.

Divisional Records:

475/3	*Campanula rapunculoides*	8	E.J.G.
254/9	*Epilobium obscurum*	3	E.J.G.
137/4	*Minuartia tenuifolia*	12	E.J.G. & M. N. Read
555/1	*Mycelis muralis*	6	E.J.G.
256	*Oenothera erythrosecpala*	12	E.J.G. & M. N. Read
343/1	*Salix pentandra*	13	R. & B. Howitt
235/5	*Sedum anglicum*	3	G. S. Phillips
459/3	*Stachys arvensis*	16	E. J. G. & Z. Porter
672/2	*Vulpia bromoides*	12	E.J.G. & M. N. Read

MYCOLOGY

H. J. Houghton

The year has provided many wet spells, and consequently the fungi have been very plentiful, both in numbers and species recorded, and brief details are given below of finds at sundry meetings of the Union during the year.

At Hartsholme on the 30th April the weather was hot and sunny, and so early in the year records were mainly of bracket and other lignicolous species, but four were myxomycetes. Of these finds, four proved to be new records for Division 13.

On the 21st May the venue was Bardney Forest, and more agarics were in evidence. Five species of myxomycetes were found in rotten stumps of trees. In all, 18 species only were collected, but when a few members paid a (mainly photographic) visit to the same spot later in the year, some 52 species were identified, including *Cantharellus infundibuliformis*, which proved to be a new County record. An allied species — *Craterellus cornucopoides*, or the 'horn of plenty' was present in quantity, to the delight of some mycophagists present. New records for Division 7 for the two visits are listed below among the 'other new records'.

The meeting at Castle Bytham (actually outside the County and in Rutland) promised well, but was washed out by continuous rain, and few species were collected. One worthy of mention was the small fruiting bodies of the ascomycete *Chlorociboria aeruginascens*. Oak wood stained green by the mycelium is often found, but not so the fruit bodies.

On the 16th July the meeting at Elsham Hall was during a dry spell and consequently again not many species were collected. However, of the 21 species identified, 9 proved to be new for division 3 and are listed below.

The venue on the 10th September was again outside the County — at Spurn Point in Yorkshire. The day was very hot and dry and four species only were found, the only one of note being a heavy infestation of ergots of *Claviceps purpurea* on the Marram grass.

The highlight of the year was, of course, the annual foray, held this year in Roxton Wood by kind permission of the Agent for the Earl of Yarborough. Miss Waterhouse again made her annual pilgrimage from Kew to lead the meeting, which as usual was very well attended. Despite previous misgivings by some members by virtue of the dry weather at the end of September, some rain in the few days immediately previous to the meeting resulted in a good crop of identifications — 99 in all. *Clavulinopsis biformis* proved to be a new European record, previously being recorded for North America and possibly Australia only. Two other species, *Pluteus umbrosus* and *Hebeloma sinuosum* were new County records. Listed below are 56 further divisional records, 10

species previously on record for Roxton Wood, and 30 species previously recorded in Division 4, though not in Roxton Wood. We are grateful to D. R. Reid, Esq. of the Royal Botanic Gardens, Kew, for the identification of the European record and *Pluteus umbrosus*.

Specimens have been sent in for identification this year by Messrs. Bates, Bracher, Lubin and Wilson and by Mrs. Adams and Nurse Heath, and some new divisional records arising therefrom are included in the lists.

There has been a marked increase in the photographic recording of fungi in the past twelve months. It is hoped that the results will not be hidden under the proverbial bushel, and that they be made available for members to see and for possible use in any future fungus flora of the County.

In conclusion, thanks must again be placed on record to Miss G. M. Waterhouse for her very ready help in keeping alive mycological studies in the County.

FUNGUS FORAY, ROXTON WOOD

8TH OCTOBER, 1966

New records for Lincolnshire:

Clavulinopsis biformis (Atk.) Corner (This constitutes a new record for Europe).

Pluteus umbrosus (Pers. ex Fr.) Kumm.

Hebeloma sinuosum (Fr.) Quél.

New records for Division 4:

Amanita vaginata (Bull. ex Fr.) Vitt.

Bolbitius vitellinus (Pers. ex Fr.) Fr.

Boletus elegans Schum. ex Fr.

Clitocybe cerussata (Fr.) Gill.

Collybia dryophila (Bull. ex Fr.) Kumm.

C. erythropus (Pers. ex Fr.) Kumm.

Collybis confluens (Pers. ex Fr.) Kumm.

Coprinus atramentarius (Bull. ex Fr.) Fr.

Cortinarius acutus (Pers.) Fr.

C. hemitrichus (Pers.) Fr.

Crepidotus variabilis (Pers. ex Fr.) Kumm.

Inocybe geophylla (Sow. ex Fr.) Kumm.

I. geophylla var. *lilacina* Gill.

Laccaria amethystea (Bull. ex Mérat) Murrill

Lactarius blennius (Fr. ex Fr.) Fr.

L. pallidus (Pers. ex Fr.) Fr.

L. rufus (Scop. ex Fr.) Fr.

L. serifluus (DC ex Fr.) Fr.

Marasmius epiphyllus (Pers. ex Fr.) Fr.

M. rotula (Scop. ex Fr.) Fr.

Mycena galopus (Pers. ex Fr.) Kumm.

M. inclinata (Fr.) Quél.

M. polygramma (Bull. ex Fr.) S. F. Gray

Oudemansiella radicata (Relhan ex Fr.) Sing.

Pholiota gummosa (Lasch.) Sing.

Psathyrella conopilea (Fr.) Pearson and Dennis

P. gracilis (Fr.) Quél.

Russula atropurpurea (Krombh.) Britz.

R. cyanoxantha (Schaeff. ex Secr.) Fr.

R. foetens (Pers. ex Fr.) Fr.

R. mairei Sing.

R. nigricans (Bull. ex Mérat) Fr.

R. ochroleuca (Pers. ex Secr.) Fr.

Tricholoma ustale (Fr. ex Fr.) Kumm.

Clavulina cristata (Fr.) Schroet.

C. helvola (Fr.) Corner.

C. rugosa (Fr.) Schroet.

Exidia albida Huds.

Irpex obliquus (Schrad.) Fr.

Polyporus adustus Fr.

Poria versipora (Pers.) Baxt.

Sphaerobolus stellatus Tode

Stereum rugosum (Pers.) Fr.

Thelephora anthocephala (Bull.) Fr.

Tremella mesenterica Retz. ex Fr.

Coleosporium tussilaginis (Pers.) Lév. on Sow thistle.

Bulgaria inquinans Fr.

Claviceps purpurea (Fr.) Tul. (ergots on *Lolium perenne* and *Bromus racemosus*).

Dasyscyphus niveus (Hedw. ex Fr.) Sacc.

Helotium scutula (Pers.) Karst.

Leotia lubrica Pers.

Scutellinia scutellata (L. ex St. A.).

Stemonitis herbatica Peck

Trichia affinis de Bary

T. botrytis Pers.

T. scabra Pers.

Previously recorded in Division 4, but not for Roxton Wood

Amanita rubescens (Fr.) S. F. Gray

Armillaria mellea (Vahl. ex Fr.) Kumm.

Coprinus comatus (Mull. ex Fr.) S. F. Gray

C. micaceus (Bull. ex Fr.) Fr.

Psathyrella hydrophila (Bull. ex Mérat) Maire

Lactarius quietus (Fr.) Fr.

L. subdulcis (Pers. ex Fr.) S. F. Gray

Mycena galericulata (Scop. ex Fr.) S. F. Gray

Pholiota squarrosa (Mull. ex Fr.) Kumm.

Russula delica Fr.

Stropharia aeruginosa (Curt. ex Fr.) Quél.

Lycoperdon piriforme Schaeff. ex Pers.

Polyporus squamosus Fr.

Polystictus versicolor Fr.

Calocera viscosa Pers. ex Fr.

Coryne sarcoides (Jacq. ex Fr.) Tul.

Daldinia concentrica (Bolt. ex Fr.) C. & de N.

Aleuria aurantia (Fr.) Fuck.

Rhytisma acerinum (Pers. ex St. A.) Fr.

Xylosphaera hypoxylon Dumort.

Previously recorded for Roxton Wood

Laccaria laccata (Scop. ex Fr.) Cooke

Hygrophorus coccineus (Schaeff. ex Fr.) Fr.

Hypholoma fasciculare (Huds. ex Fr.) Kumm.

Panaeolus rickenii Hora (as *P. campanulatus*).

Clavulina cinerea (Fr.) Schroet.

Stereum hirsutum (Willd.) Fr.

Arcyria denudata Wetts.

Lycogala epidendrum Fr.

Stemonitis fusca Roth.

Trichia varia Pers.

Other new records for 1966

County records:

	Division
Cantharellus infundibuliformis (Scop.) Fr.	7

Divisional records:

Collybia confluens (Pers. ex Fr.) Kumm.	7
Incoybe geophylla (Sow. ex Fr.) Kumm.	7
Lepiota clypeolaria (Bull. ex Fr.) Kumm.	5
Marasmius androsaceus (L. ex Fr.) Fr.	3
Melanoleuca melaleuca (Pers. ex Fr.) S. F. Gray	7
Mycena epipterygia (Scop. ex Fr.) S. F. Gray	7
Omphalina ericetorum (Fr. ex Fr.) M. Lange	3
Psathyrella conopilea (Fr.) Pearson & Dennis	7
P. spadiceo-grisea (Fr.) Maire	3
Russula atropurpurea (Kromb.) Britz.	7
R. betularum Hora	7
Hydnum repandum L. ex Fr.	7
Ganoderma applanata (Pers.) Pat.	3
Hymenochaete rubiginosa (Dicks). Lév.	7
Stereum sanguinolentum (Fr.) Fr.	13
Trametes rubescens (A. & S.) Fr.	7
Dacromyces deliquescens (Bull.) Duby	3
Ramaria stricta Quél.	7
Phallus impudicus (L.) Pers.	3
Calvatia gigantea (Pers.) Lloyd	1
Lycoperdon caelatum Bull.	15
Stilbum tomentosum Schrad. ex Fr.	7
Xenodochus carbonarius Schlecht. on *Sanguisorba officinalis*	7
Dasyscyphus virgineus S. F. Gray	7
Claviceps purpurea (Fr.) Tul. — ergots on *Lolium perenne*	5
Peziza repanda Pers.	13
Rhytisma acerinum (Pers. ex St. A.) Fr.	5
Cladosporium sphaero spermum Penzig	12
Comatricha nigra Schroet	7, 13
C. typhoides Rost.	7
Fuligo septica Gmel.	3
Leocarpus fragilis (Dicks.) Rost.	6
Reticularia lycoperdon Bull.	13
Stemonitis taxifera (Bull.) Macbr.	3
Trichia affinis de Bary.	7

BRYOLOGY

MARK R. D. SEAWARD, M.SC., M.I.BIOL.

56/7 *Rhacomitrium canescens* (Hedw.) Brid.

Numerous records (mainly from Appleby, Crosby, Manton, Messingham, Risby and Santon) for this moss were made between 1854 and 1932 by W. Fowler, E. A. W. Peacock and G. H. Allison, but extensive field work in division 2 during the period 1960-1965 failed to locate this species.

77/28-30 *Bryum erythrocarpum* complex

Further examination of existing herbarium material and recent field collections give a clearer picture of the distribution of these species in Lincolnshire (see also Seaward, 1965):

B. micro-erythrocarpum C. Müll & Kindb. 5, 15.

B. rubens Mitt. 2-4, 6, 13, 15-17.

B. ruderale Crundw & Nyh. 4, 15.

B. klinggraeffii Schimp. 2, 13, 15.

B. violaceum Crundw & Nyh. 15.

90/2 *Philonotis fontana* (Hedw.) Brid.

Numerous records for this moss (in a few cases substantiated by herbarium material) appear in the registers for divisions 1, 3, 5-7, 10, 15, 16, but I fear the distribution is quite limited and absent from most of these stations.

99/1, 3, 5 *Ulota* spp.

There are several records (mainly coastal) for *U. phyllantha* Brid., *U, crispa* (Hedw.) Brid. and *U. bruchii* Hornsch. ex Brid. from North Lincolnshire between 1877 and 1928. J. J. Marshall recorded all three species from Little Coates between 1911 and 1913. I failed to locate this genus (and the locally rare liverwort *Ptilidium pulcherrimum* (Weber) Hampe — see Seaward, 1964) in this area during a recent field trip (17/8/1963). I fear the genus *Ulota* may be extinct in Lincolnshire.

109/2, 4 *Neckera* spp.

N. crispa Hedw. appears to be extinct in Lincolnshire; there are only records by W. Fowler from Broughton (1879) and Nocton, Aswardby, Corby and Bourne (1880) on the registers. *N. complanata* (Hedw.) Hüben. is more widespread (in terms of records) and is recorded from divisions 1, 3, 4, 6-8, 10, 11, 13-16; the species is fast disappearing from the county and there are very few recent records.

125/1, 2 *Cratoneuron* spp., 126/1-6 *Campylium* spp., 127/1.
Leptodictyum riparium (Hedw.) Warnst., 128/1, 2.
Hygroamblystegium spp. and 129/1-4 *Amblystegium* spp. Details of the status of these genera in Lincolnshire have been published during the past year (see Seaward, 1966).

Moss Records for 1966:

Vice-county Records:

77/29.a *Bryum ruderale* Crundw. & Nyh.
V.C. 54. Cleethorpes, May, 1928, G. H. Allison (*Trans. Brit. Bryol. Soc.*, **5,** 198).

77/30 *B. klinggraeffii* Schimp.
V. C. 54. nr. Flixborough, Aug., 1966, M. Seaward.

149/10 *Plagiothecium succulentum* (Wills.) Lindb.
V. C. 53. nr. Woolsthorpe Wharf, June, 1964, M. Seaward.

Divisional Records:

1/19 *Sphagnum fimbriatum* Wils.
div. 15. Woolsthorpe Wharf, July, 1966, M. Seaward.

44/20 *Barbula recurvirostra* (Hedw.) Dix.
div. 16. nr. Baston, Aug., 1966, J. H. Chandler and M. Seaward.
div. 17. Surfleet, Aug., 1966, J. H. Chandler and M. Seaward.

49/2 *Tortella tortuosa* (Hedw.) Limpr.
div. 13. Leadenham, Sept., 1965, E. H. Clifton.

59/1 *Physcomitrium pyriforme* (Hedw.) Brid.
div. 2. nr. Burton-upon-Stather, Aug., 1966, M. Seaward.

77/25.b *Bryum argenteum* var. *lanatum* (P. Beauv.) Hampe.
div. 17. nr. Money Bridge, Aug., 1966, J. H. Chandler and M. Seaward.

77/29 *B. rubens* Mitt.
div. 2. Hibaldstow, Aug., 1966, M. Seaward.
div. 6. nr. N. Carlton, Aug., 1966, M. Seaward.
div. 15. E. of Woolsthorpe, Oct., 1962, H. L. K. Whitehouse.
div. 16, nr. Toft, Aug., 1966, J. H. Chandler and M. Seaward.

77/30 *B. klinggraeffii* Schimp.
div. 13. Bracebridge Heath, Aug., 1966, M. Seaward.

79/9 *Mnium longirostrum* Brid.
div. 5. Scotton, Aug., 1966, M. Seaward.

98/16 *Orthotrichum diaphanum* Brid.
div. 17. Pinchbeck, March, 1966, J. H. Chandler.

111/1 *Thamnium alopecurum* (Hedw.) B., S. and G.
div. 6. Burton-by-Lincoln, Feb., 1966, Miss W. Heath.

142/4 *Rhynchostegiella tenella* (Dicks.) Limpr.
div. 16. Stamford, Sept., 1966, J. H. Chandler.
First record for S. Lincolnshire since 1901, when Miss S. C. Stow collected material from Sapperton (see *The Naturalist*, 1902, 130). Possibly overlooked.

154/1.b *Hypnum cupressiforme* var. *resupinatum* (Wils.) Schimp.
div. 5. Scotton, Aug., 1966, M. Seaward.
div. 17. Pinchbeck, March, 1966, J. H. Chandler.

154/1.e var. *ericetorum* B., S and G.
div. 5. Scotton, Aug., 1966, M. Seaward.
div. 10. Roughton Heath, April, 1966, Miss W. Heath.

Liverwort Records for 1966:

Divisional Records:

12/3 *Riccardia sinuata* (Dicks.) Trev.
div. 15. Morkery Wood, Oct., 1965, M. Seaward.

27/1 *Ptilidium ciliare* (L.) Hampe
div. 10. Roughton Heath, April, 1966, Miss W. Heath.

56/2.b *Plagiochila asplenioides* var. *major* Nees
div. 7. nr. Wragby, March, 1966, Miss W. Heath.

57/2 *Lophocolea cuspidata* (Nees) Limpr.
div. 16. Elsea Wood, Aug., 1966, J. H. Chandler and M. Seaward.

References:

Seaward, M. R. D. (1964). *Ptilidium pulcherrimum* (Weber) Hampe in Lincolnshire. *Trans. Brit. Bryol. Soc.*, **4,** 684-5.

Seaward, M. R. D. (1965). Bryology Report for 1964. *Lincs. Nat. Union Trans.*, **16,** 107.

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LICHENOLOGY

MARK R. D. SEAWARD, M.SC., M.I.BIOL.

The Lichen Flora of Risby Warren:

Some interesting ecological work has been carried out at Risby Warren, near Scunthorpe (by kind permission of Captain J. Elwes) — a preliminary account of which has been published elsewhere (Seaward, 1966b). Essentially the work has been concerned with lichen distribution studies. The approach to date has been mainly qualitative, but some transect work has been undertaken. A major transect, 680 metres in length, was measured out from the approximate grid co-ordinates 44/925135 and 44/931138, with the following bearings to the Scunthorpe urban and industrial developments:

approx. grid co-ordinates	distances (km.)		
	E. of steel works (A)	N.E. of main urban areas	N. of steel works (B)
44/925135	3.36	3.50	2.05
44/931138	4.16	4.18	2.34

Risby Warren is situated in the path of the prevailing south-westerly winds that have previously swept over the extensive industrial and urban areas of Scunthorpe. There is a noticeable difference in the lichen floras of the heathlands to the north-east of Scunthorpe and the heathlands to the south-west (*e.g.*, Twigmoor Warren: Seaward, 1965). Furthermore, there is a correlation at Risby Warren between lichen flora and distance from Scunthorpe — as shown by the above transect work. A more detailed account of this work will be published at a later date.

Check-List:

The following are additions to the recently published check-list (Seaward, 1966a):

Caloplaca citrina (Hoffm.) Th. Fr. 11*.

Cladonia coniocraea (Flörke) Spreng. 3.

C. furcata (Huds.) Schrad. 15.

C. gracilis (L.) Willd. 5.

C. impexa Harm. 10.

C. polydactyla (Flörke) Spreng. 15.

C. pyxidata (L.) Hoffm. 2, 16 (see note on p. 155 of Check-List).

C. subulata (L.) Web. B.L.S., 1965. 16 (omitted from Check-List although synonym given on p. 154).

Lecidea stigmatea Ach. 6*.

Physcia grisea (Lam.) Zahlbr. 13.

Verrucaria muralis Ach. 11.

Xanthoria candelaria (L.) Th. Fr. 17*.

X. polycarpa (Hoffm.) Oliv. 15*, 17.

*Vice-county records for 1966.

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MAMMALS

M. JOHNSON, F.Z.S.

There has been an increasing interest in the study of non-avian vertebrates by amateur naturalists in recent years. In Lincolnshire records for this section are very badly needed and I would emphasise that all records are valuable if we are to build up a true picture of the distribution of the non-avian vertebrate fauna of our county. Information is also needed to support the National Surveys of Mammals, Reptiles, Amphibians and Fish which are at present in progress.

The *National Badger Survey* is a scientific investigation and the information gathered will be used for scientific purposes only. Any information on the location of Badger setts would be welcome. The Badger is a much persecuted mammal and the exact locations of any setts found will not be given in reports.

The *Otter* is an interesting mammal which is not as uncommon in the county as many people think. Records have been received of Otter sightings by the rivers Witham, Brant and Bain.

Reports of the occurrence of *Polecats* came in from Bardney, North Hykeham and Hartsholme, but in each case a dead animal was available for inspection and all three proved to be *Polecat Ferrets* of the domestic variety used for rabbitting.

Information is badly needed on the localities of *Bat* colonies and I hope that every likely place will be searched and reported upon. Our knowledge of the distribution of Bats in the county is poor and this is due to the lack of observers rather than the lack of bats.

I have seen *Noctule Bats* in flight at North Hykeham, the Doddington area and at Bardney. I located a colony of this species in a hollow

birch tree in the Doddington area and, at dusk in August, counted thirty-eight bats leave the tree and fly off to their feeding grounds. *Pipistrelle Bats* have been identified from dead specimens at North Hykeham and Sudbrooke Park. One *Long-eared Bat* was found in Sudbrooke Park.

Many of the commoner mammals seem to be generally distributed in all suitable localities throughout the county. One way in which a casual observer can build up evidence of their occurrence is to examine a stretch of road for the bodies of animals which have been killed by traffic. For example, the following is a list of road victims found on the two mile stretch of road between the Doddington road level-crossing and the Eagle and Skellingthorpe cross-roads from July 8th to September 12th, 1966:

16 *Hedgehogs*, 8 *Brown Rats*, 5 *Hares*, 4 *Grey Squirrels*, 3 *Weasels*, and 1 each of *Mole*, *Short-tailed Vole*, *Woodmouse* and *Lesser Shrew*, together with 2 *Grass Snakes* and 1 *Toad*.

Another way is through the study of *Barn Owl* pellets. Pellets collected by Lincoln Nature Club members at a Barn Owl roost in a hollow tree near North Hykeham contained the remains of 23 Common Shrews, 1 Lesser Shrew, 5 Water Voles, 11 Brown Rats, 1 Mole, 7 Wood Mice, 43 Field Voles and 9 bird skulls.

CETACEA

M. J. Pearson

In 1915 the first and only list of Lincolnshire Cetacea was published in the Transactions. It is hoped that this list with full additions will eventually be published, but for the present a list of stranded whales from 1947 to 1967 is included. This period has yet to be covered by British Museum Reports.

I personally have examined one of the specimens at Gibraltar Point but the rest of the records have been supplied by the Natural History Museum.

The specimen I examined was the Common Porpoise stranded on December 5th, 1965. The whale had presumably been killed by striking against some object, since the left flank had a large portion missing, but it was stranded under wreck conditions.

Length	4 ft. 10 ins.
Flipper length	6 ins.
Blow-hole — Dorsal fin	22 ins.
Half tail fluke	5 ins.
Height of dorsal fin	2.5 ins.

The Natural History Museum commented that at the same period five animals were stranded in Northumberland.

Species	*Date*	*Length*	*Locality*
Common Porpoise *Phocaena phocaena*	July 23rd, 1955	5′ & 4½′	Theddlethorpe
	April 26th, 1957	4′	Donna Nook
	Oct. 12th, 1959	4′	Mablethorpe
	Dec. 26th, 1959	4′ 3¼″	Donna Nook
	Jan. 13th, 1960	4′ 3½″	Mablethorpe
	April 20th, 1960	4′ 7″	Mablethorpe
	Sept. 29th, 1960	4′ 1″	Mablethorpe
	July 31st, 1962	—	Mablethorpe
	Dec. 5th, 1965	4′ 10″	Gibraltar Point
White-sided Dolphin *Lagenorhynchus actus*	ca. Sept. 25th, 1959	5′	Gibraltar Point
White-beaked Dolphin *Lagenorhynchus albirostis*	Sept. 21st, 1959	3′ 11″	Donna Nook
Killer *Orcinus orca*	Oct. 19th, 1957	21′ 3″	Gibraltar Point
Bottle-nosed Dolphin *Tursiopstruncatus*	July 16th, 1948	8′ 7″	Burringham
Bottle-nosed Whale *Hyperoodon rostratus*	ca. Sept. 9th, 1956	23′ 0″	Sutton Bridge
Sowerby's Whale *Mesoplodon bidens*	Aug. 14th, 1961	16′ 0″	One mile north of Mablethorpe

At the beginning of 1966 a cetacean skull was found at Gibraltar Point which proved to be that of a Common Porpoise. Similarly a propoise skull was found at North Coates in October, 1966.

Whales are obviously deceptive creatures, but it is hoped that further study will be done on the subject.

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ARACHNOLOGY

G. W. WHATMOUGH, M.P.S.

During the year work on recording in the 10 km squares of the National Grid has continued with, where possible, preference being given to a few of the neglected areas. For example, the square which includes Navenby and Boothby Graffoe, was without spider records.

I am happy to say that this stigma is now removed, though the area will never be one of the best. A mid-week Field Meeting was held at Wickenby Wood in another neglected square. A number of fresh records resulted. I am also pleased to report that Mr. F. Brasier and Mr. J. H. Duddington have once again been collecting in two of the squares in the Scunthorpe region while Mr. G. N. Holland and Mr. M. R. D. Seaward have sent in spiders from the southern half of the County. Many new spots on the maps have resulted from their combined efforts.

Whenever one admits an interest in spiders it is usually not long before one question arises: "Can spiders bite?" The questioner wants to know if any of the British species is capable of biting him. Having handled hundreds of species over a number of years without harm, I have always answered "No" to this question. None of the Press reports of such occurrences have been clear or convincing. Recently, however, I bought a second-hand copy of Savory's "British Spiders", published in 1926, in which a previous owner had inserted a cutting from a letter written to the 'Field' in September, 1943. The writer, a doctor, described in detail how his four year old son had been bitten by a female *Drassodes lapidosus*. He found the spider clinging to the boy's index finger at about the only spot where the tiny jaws could obtain a grip; on the fold of skin at the side of the finger nail. The account is most clearly given with full details of symptoms and treatment. I am particularly interested in this aspect of spider study and will be glad of any information on the subject from whoever happens to read this in the future.

Another fascinating thing about spiders is the occasional mass migration which results in fields and hedgerows being covered in silk. True gossamer days, days when spiders alight on the collector in dozens, are rare. Dispersals do take place on a more modest scale during our brief spells of still, anticyclonic weather in September. On such a day this year, about thirty specimens which gave themselves up, were examined. They comprised five different species and are given below in decreasing order of frequency.

Lepthyphantes tenuis.
Erigone dentipalpis.
Erigone atra.
Bathyphantes gracilis.
Centromerita bicolor.

The following list of species collected during the year can only include a few of the specimens sent in by the various contributors, and follows the nomenclature of Locket and Millidge.

Family DICTYNIDAE

Ciniflo ferox (Walck.)

The rarest of the three British members of the genus. Taken at Scunthorpe (10 km. sq. 4480) by F.B.

Family GNAPHOSIDAE

Herpyllus blackwalli (Thor.)

This typically indoor spider has been reported twice out-of-doors this season, near Lincoln in October and earlier at Scunthorpe.

Family CLUBIONIDAE

Zora spinimana Sund.

A spider rarely found very far from woods. Taken by J.H.D. on Manton Common towards the end of March.

Family THOMISIDAE

Oxyptila trux (Bl.)

An attractive little crab-spider, far less common than *Xysticus cristatus* which it closely resembles in the field. Microscopic examination reveals clavate hairs not seen in *Xysticus*. The present specimen, an adult male, was found at the edge of a field near Navenby.

Oxyptila atomaria (Panz.)

A rarer member of the genus than the above sp. A male was found at Scotton Common in April (J.H.D.). This is only the third time it has been recorded in Lincolnshire and the first record for seventy years.

Family SALTICIDAE

Evarcha falcata (Cl.)

A most attractive member of the jumping-spider group, usually associated with detritus in woods. Found again at Scotton Common by J.H.D.

Family LYCOSIDAE

Lycosa prativaga L. Koch

Female spiders which are intermediate between the above species and *Lycosa pullata* (Cl.) seem to be particularly plentiful in N.W. Lincs., a specimen which was clearly *prativaga* and with a text-book epigyne, was found in the Kettlethorpe area in June.

Lycosa amentata (Cl.)

Two adult males of this common wolf-spider were found in an old boot in Scrubbs Wood near Wragby by G.N.H. In spite of it being such a common and widespread species this is a new record for 10 km. sq. 5317.

Pirata latitans (Bl.)

Found in moist sphagnum at Woolsthorpe Wharf in July (M.R.D.S.). It has only been taken twice before in the County, at Linwood in 1898 and at Scotton in 1963. Like its common relatives, it is able to run on the surface of water.

Trochosa ruricola (Degeer)

Two females, one with an enormous egg-sac more than one cm. in diameter, were found in a limestone quarry in the Hollywell-Clipsham area. (G.N.H.).

Family THERIDIIDAE

Pholcomma gibbum (Westr.)

A male found in leaf litter near the road in Doddington Woods in March provided a new County record.

Family TETRAGNATHIDAE

Tetragnatha extensa (Linn.)

Usually found in loosely woven orb snares on vegetation overhanging water. A specimen was taken in an area near Kettlethorpe which was possibly originally marshy, but now well drained agricultural land.

Family ARGYOPIDAE

Araneus marmoreus pyramidatus (Cl.)

This variety is more common in most parts of Britain than the type. In September, 1965 the variety was taken at Scotton Common (J.H.D.). This happens to be one of the few areas in Lincolnshire where the type is easier to find than the variety.

Araneus cucurbitinus opisthographus Kulcz.

Re-examination of a number of spiders previously diagnosed and labelled *A. cucurbitinus* resulted in two females being set aside for verification by Mr. G. H. Locket. His opinion was that both were referable to the variety *opisthographus*. The spiders concerned were both found at Twigmoor in June, 1962 (J.H.D.). This variety has not been recorded in Lincolnshire before, but it is very reasonable to assume that it has been overlooked in the past.

Family LINYPHIIDAE

Gonatium rubens (Bl.)

An orange and grey spider recognisable in the field in spite of its small size. A new record for the Navenby area, taken in August.

Pocadicnemis pumila (Bl.)

A male, a pale specimen probably taken soon after its final moult, was found at Gibraltar Point in May. A new record for this area.

Erigonella hiemalis (Bl.)

Members of both sexes were taken in number at Rippingale at the end of 1965 by Mr. E. C. Riggall. Also found at Scotton Common (J.H.D.) in March, 1966. The species appears to favour moist moss.

Linyphia hortensis Sund.

Possibly more plentiful than the usually abundant *L. montana* in Wickenby Wood at the time of the field meeting in June.

Apart from the above true spiders only one member of another Arachnid order worthy of note has been found during the year. This is the Harvest-spider *Nemastoma chrysomelas* which has been found in a house garden at Thorpe-on-the-Hill near Lincoln. It has previously been found in only two other localities and is usually, as in this case, found singly.

CONSTITUTION OF THE LINCOLNSHIRE NATURALISTS' UNION

Approved at the Annual General Meeting, 11th March, 1967.

Aims and objects

1. The Lincolnshire Naturalists' Union exists to promote the thorough investigation of the geology, fauna, flora and physical features of the County, to bring together workers following the same pursuits, and to increase the interest in, and study of every branch of natural history.

President

2. There shall be a President of the Union who will take office the year after being elected President-elect. The consent of a nominee must be obtained before the nomination as President-elect can be accepted for the Annual General Meeting. The President must be connected with Lincolnshire either by birth, residence or scientific work.

Officers

3. The Officers of the Union shall consist of the President, Hon. General Secretary, Hon. Treasurer/Membership Secretary, one or more Hon. Field Secretaries and (if not undertaken by the Hon. General Secretary) the Hon. Editor of Transactions and other publications, and shall be elected annually.

Executive Committee

4. The Executive Committee of the Union shall consist of the Officers of the Union and three members elected annually, together with the President-elect and the immediate past President of the Union, two members of the Junior Section of the Union, the Secretary of the Lincolnshire Trust for Nature Conservation Ltd., and the Secretary(s) of any Local Group(s) which may be in existence.
5. The Executive Committee shall have the sole management of all affairs of the Union, subject to the approval of the Annual General Meeting. This shall include the filling of temporary vacancies of Officers (but not including the President-elect), and the power to co-opt in special circumstances (but such co-opted members shall not have a vote on the Committee). The Committee shall meet as and when there is business to transact.

Sections and Groups

6. There shall be subject Sections or groups of Sections, each with a President and one or more Secretaries. The number and arrangement of Sections may be varied from time to time to suit the development of the various branches of natural history. The Officers of the Sections shall be elected annually at the Annual General Meeting.

7. A Section may elect its own Committee from among members with appropriate specialist interest to organise that interest. The President, Hon. General Secretary and Hon. Treasurer/Membership Secretary of the Union shall be ex-officio members of any such Section Committee, which shall be responsible to the Executive Committee of the Union.

8. There shall be a Junior Section responsible for organising special activities for Junior members of the Union. The organising committee of this Section shall consist of one or more General Secretaries, one or more Field Secretaries, four Committee members and two Juniors as Committee members, all to be elected annually, together with the Hon. General Secretary and Hon. Treasurer/Membership Secretary of the Union ex-officio.

9. In order to stimulate and sustain interest among members in centres of population in the County, there may be formed a Local Group of the Union, open only to members of the Union. Each such Group shall arrange local activities in accordance with the aims of the Union and subject to the approval of the Executive Committee of the Union. Each Group shall have a Secretary who shall be a member of the Executive Committee, and shall be elected annually at the Annual General Meeting.

Representatives

10. The Union shall be represented on:

    (*a*) the Council of the Lincolnshire Trust for Nature Conservation Ltd. — six members to be elected annually;

    (*b*) Wild Plant Conservation Board — one member to be elected annually;

    (*c*) Lincolnshire Branch of the Council for the Preservation of Rural England — one member to be elected annually;

    (*d*) Council for Nature — one member to be elected annually;

    (*e*) Lindsey and Holland Rural Community Council — one member to be elected to serve for three years;

and such other bodies as the Annual General Meeting may, from time to time, determine.

Nominations and Elections

11. (*a*) Nominations for President-elect, Hon. General Secretary, Hon. Treasurer/Membership Secretary, Hon. Field Secretaries, Hon. Editor of Transactions and other publications (if not undertaken by the Hon. General Secretary), three members of the Executive Committee, Section Officers, Junior Section Officers, Local Secretaries, Hon. Auditor and representatives of the Union on other bodies shall be made in writing to the Hon. General Secretary at least seven days before the date of the Annual General Meeting.

(*b*) Junior members shall be allowed to vote only for Junior Section officers.

(*c*) Elections shall be by a simple majority.

Membership and Finance

12. (*a*) There shall be six classes of membership:
Life, Ordinary, Student (over 18 years and in full-time study), Junior (up to 18 years), Family and Group (Societies, Schools, Colleges, Museums, Libraries, etc.).

(*b*) It shall also be possible for an Annual General Meeting to elect Honorary Life Members of the Union.

13. (*a*) Subscriptions shall be due on joining and then on 1st January each year. The amount of the subscription may be varied from time to time by consent of the Annual General Meeting.

(*b*) Where a membership commences between 1st October and 31st December inclusive, payment of the first subscription shall bring the full benefits of membership from the date of joining to the end of the financial year following.

(*c*) The financial year shall be from 1st January to 31st December, the accounts to be presented at the Annual General Meeting following.

14. There shall be an Honorary Auditor who shall be elected annually.

15. The income and property of the Union, whence so ever derived, shall be applied solely towards the promotion of the aims and objects of the Union as set forth above, and no portion thereof shall be paid or transferred directly or indirectly by way of dividend, bonus or otherwise howsoever by way of profit to individuals or any associate of the Union.

Publications

16. (*a*) The Union shall publish annually the *Transactions*, containing papers and reports, which shall be available free to members (one per member or per Family or Group membership).
    (*b*) The Union may also from time to time publish Natural History Brochures.
    (*c*) The Union may publish an occasional Newsletter.

Meetings

17. An Annual General Meeting shall be held in March, followed by the address of the retiring President, and an annual Exhibition and meeting to receive Section Officers' reports shall be held in November, at least fourteen days notice to be given of such meetings.
18. Six or more Field Meetings shall be organised each year.
19. The Union shall also arrange lectures and demonstrations during the winter months.
20. A Special General Meeting may be called by the Executive Committee, or on the written request of at least ten members of the Union. Such Special General Meeting must be held within twenty-eight days of the decision of the Executive Committee or the written request being received by the Hon. General Secretary, at least fourteen days notice to be given of such meeting.

Headquarters

21. The Headquarters of the Union shall be the City and County Museum, Lincoln, where it shall maintain its library, records and reference material.

Amendments

22. Alterations, additions or amendments to this Constitution may only be made by an Annual or Special General Meeting by a two-thirds majority of members present and voting. Notification of proposed alterations, additions or amendments must be made in writing to the Hon. General Secretary of the Union at least seven days before the date of an Annual or Special General Meeting.

NOTE :

The BIRD REPORT 1966
and the Index for Volume Sixteen
will be published separately as Vol. XVI, No. 4 Part 2.

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